Michigan

Science and Engineering Profile

Characteristic	State	U.S.	Rank	Characteristic	State	U.S.	Rank
Doctoral scientists, 1999[1]	13,770	518,670	13	Total R&D performance, 1998 (millions)	$13,655	$214,668	3
Doctoral engineers, 1999[1]	4,530	107,100	7	Industry R&D, 1998 (millions)	$12,648	$163,480	2
S&E doctorates awarded, 1999[1]	958	25,953	8	Academic R&D, 1998 (millions)	$876	$25,342	8
of which, in engineering	26%	21%		of which, in life sciences	58%	57%	
in life sciences	21%	25%		in engineering	18%	16%	
in social sciences	17%	16%		in social sciences	8%	4%	
S&E postdoctorates, 1998[1]				Public higher education current-fund			
in doctorate-granting institutions	1,060	39,494	10	expenditures, 1997 (millions)	$5,987	$125,236	4
S&E graduate students, 1998[1]				Number of SBIR awards, 1990-98	690	35,413	14
in doctorate-granting institutions	15,963	422,834	9	Patents issued to state residents, 1999	3,682	83,901	7
Population, 1999 (thousands)	9,864	276,580	8	Gross state product, 1998 (billions)	$295	$8,800	9
Civilian labor force, 1999 (thousands)	5,136	140,536	8	of which, agriculture	1%	1%	
				manufacturing, mining, construction	31%	22%	
Personal income per capita, 1999	$28,113	$28,542	19	transportation, communication, utilities	7%	9%	
				wholesale and retail trade	17%	16%	
Federal spending				finance, insurance, real estate	15%	19%	
Total expenditures, 1999 (millions)	$43,872	$1,508,933	9	services	19%	21%	
R&D obligations, 1998 (millions)	$748	$70,445	22	government	10%	12%	

NOTE: Rankings and totals are based on data for the 50 States, District of Columbia, and Puerto Rico. Reliability of the estimates of industry R&D and of doctoral scientists and engineers varies by State, because the sample allocation was not based on geography. The rankings do not take into account the margin of error of estimates from sample surveys.

[1]Data on graduate students, doctoral scientists and engineers, and postdoctorates include all graduate degree (except M.D.) candidates and recipients in S&E fields, including health fields. Data on S&E doctorates awarded do not include health fields.

Federal Obligations for Research and Development by Agency and Performer: Fiscal Year 1998

Agency	Performer							
	Total	Federal Intramural	All FFRDCs	Industrial firms	Universities & colleges	Other nonprofits	State & local government	State rank, total
	[In thousands of dollars]							
Total, all agencies	748,443	111,457	0	160,127	450,082	17,989	8,788	22
Department of Agriculture	21,110	6,829	0	0	14,275	6	0	25
Department of Commerce	24,263	6,936	0	14,607	1,878	442	400	7
Department of Defense	230,914	87,371	0	103,054	36,568	3,921	0	23
Department of Energy	15,880	0	0	0	15,750	130	0	30
Dept. of Health & Human Services	306,905	736	0	13,063	284,935	5,235	2,936	12
Department of the Interior	10,130	9,585	0	9	457	0	79	16
Department of Transportation	7,487	0	0	2,330	149	1,635	3,373	15
Environmental Protection Agency	18,849	0	0	4,671	9,385	2,793	2,000	8
National Aeronautics and Space Admin	30,304	0	0	19,564	8,158	2,582	0	20
National Science Foundation	82,601	0	0	2,829	78,527	1,245	0	7
State rank, total	22	22	na	23	9	23	6	na

NOTE: Federal R&D obligations are as reported by funding agencies. Ranks and totals are based on data for the 50 States, District of Columbia, and Puerto Rico.

KEY: FFRDC = federally funded research and development center; SBIR = small business innovation research; na = not applicable.

SOURCES: Prepared by the National Science Foundation/Division of Science Resources Studies. Data compiled from numerous sources -- see the section, "Data Sources for Science and Engineering (S&E) State Profiles".